

Should Project Managers Buy Technical Data?

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Abstract

Aligning technical data needs to program life-cycle requirements is key to sustaining, repairing, and acquiring additional products in the future. The purpose of this research is to help the acquisition workforce understand the data rights challenges associated with commercial and nondevelopment item procurements. The research draws on available secondary sources of information on technical data rights from Department of Defense directives and instructions, guidebooks, and official Government audit reports. The author's analysis finds that there is sufficient information to guide acquisition professionals on technical data procurement and management. The conclusion is that acquisition professionals should procure technical data rights for commercial and nondevelopmental items for products that will be in the Army's formation after the procurement contract has expired. This paper also makes several recommendations that acquisition professionals can use to structure intellectual property strategies.

Chapter 1 – Introduction

Background

The Department of Defense (DoD) depends on the professionals in the acquisition community to determine intellectual property (IP) management and technical data rights (TDR) strategies. According to DoD Instruction 5000.02 (DoD, 2017), project managers (PMs) have the ultimate responsibility as the total life-cycle system manager to ensure that the IP and technical data are acquired, safeguarded, and managed, making sure acquisition professionals design programs for affordability. Buying the best data rights is inherent in the PM's role. The purpose is to make sure certain programs are supportable long after the products are issued to the user and production lines are shut down. PMs must also consider and reevaluate technical data strategies during every procurement or reprocurement action of a weapon system (DoD, 2017).

The Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 227.71, "Rights in Technical Data," provides guidance on requirements for procuring the correct level of data rights and describes the process of articulating IP and data management rights in procurement (DoD, 2016).

Problem Statement

What actions can DoD take to get acquisition professionals to think about TDR early in the program? PMs are funded to procure technical data to make certain that the products are sustainable over the life cycle of the program. Little evidence suggests that PMs are forecasting downstream commercial-off-the-shelf (COTS) and nondevelopmental item (NDI) hardware and software sustainment requirements. In some cases, the Army's organic industrial base capabilities may decrease because the Government does not have the TDRs or IP necessary to

operate, maintain, and sustain critical technology (Government Accountability Office [GAO], 2005). DoD policy and regulations are in place to assist PMs in buying the best data rights.

Purpose of This Study

The goal of this research is to explore and analyze the hardware sustainment impacts of not having TDRs for COTS and NDI products. This study examines the existing laws, regulations, and policies that guide PMs and contracting officers on IP and TDRs. It seeks to find out whether there are gaps in the current policies and procedures that hinder Government acquisition professionals from acquiring the best level of data rights.

Significance of This Research

The study of this topic will add to the body of knowledge that helps PMs develop acquisition strategies that are conducive to designing supportable programs. Several previous research projects have looked at the impacts of software data rights. This study examines technical data management to determine how software changes affect hardware, as well as the impact that COTS equipment is having on the skills within the organic industrial base.

Overview of the Research Methodology

The correlational research methodology was used to examine current acquisition policies and practices and their sustainability successes and failures. This exploration also includes perspectives taken from current Army PMs, Army Materiel Command (AMC), Headquarters (HQ) G-4 and G-8, the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)), Life Cycle Management Commands (LCMCs), Tobyhanna Army Depot, and the user.

Research Questions

Should Army PMs procure TDR for COTS and NDI hardware? What has been the impact of not buying technical data packages (TDPs) on the organic industrial depots?

Research Hypotheses

Defense acquisition leaders help to sustain weapon systems when technical data is available. The direction from the DoD to not procure TDRs for COTS and NDI products has reduced the capability of the organic base to sustain and repair critical weapon systems.

Limitations

This study is limited to the available evidence: facts and examples from previous cases, regulations, policies, audits, and other information obtained through online resources. It also uses perspectives from current acquisition professionals in the field. This evidence helps to identify gaps in policies and procedures within the Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) portfolio.

Chapter 2 – Literature Review

This chapter begins with the literature found in the area of IP and TDR. The literature review is organized to provide a good idea of the previous research conducted in the field of IP and TDR. In addition, this study evaluates current directives, regulations, policies, and guidebooks available to acquisition professionals.

Laws, Policies, Audits, and Guidebooks

Armed Forces, 10 United States Code (U.S.C.) § 2377 (2012). This statute provides direction for acquisition professionals on the acquisition of commercial items. The guidance states that the head of the agency will conduct market research to determine whether there is a suitable commercial item available that can be used to satisfy user requirements. The code recognizes, however, that if “commercial items suitable to meet the agency’s needs are not available, nondevelopmental items other than commercial items, may be procured....”

Armed Forces, 10 U.S.C. § 2464 (2017). This statute directs that DoD will establish and maintain an organic repair capability in a Government-owned and Government-operated facility. The law details that it is important for the Government to have the internal Government repair capacity for mission-essential weapon systems.

Department of Defense Directive (DoDD) 5000.01 (DoD, 2007). This directive provides policy for the Defense Acquisition System. The policy is intended to guide PMs on how to think about the defense acquisition process. The directive delineates clear roles and responsibilities for the defense acquisition executive, the Milestone Decision Authority (MDA) and the PM.

Department of Defense Instruction (DoDI) 5000.02 (DoD, 2017). Change 1 to DoDI 5000.02 is the latest update to this document on the Operation of the Defense Acquisition

System. The DoD instructions direct “PMs to include IP planning for all systems throughout the program’s entire life cycle” (p. 48). The instructions contain a requirement for “PMs to establish and keep IP strategies to identify and maintain a full spectrum of IP and related IP issues” (p. 49). The directed IP strategy is required to contain, at a minimum, a plan of how the PM will assess IP needs over the life cycle. Enclosure 2 of DoDI 5000.02 outlines a strategy that should guide PMs when procuring technical data, which includes suggestions about doing business with small businesses. Enclosure 13 of DoDI 5000.02 says that during the Product and Development phase PMs are required to provide the user with the necessary technical data to operate the weapon system.

Defense Federal Acquisition Regulation Supplement (DFARS), Subpart 227.71 (DoD, 2016). DFARS Subpart 227-71 governs the policies and procedures for acquiring technical data and the rights to use, modify, reproduce, release, perform, or disclose technical data. The subpart also provides guidance on the laws and executive orders that apply to managing TDR. Subpart 227-7101 sets forth a clear policy that DoD shall procure only the technical data needed to perform maintenance and repair of commercial items. Although not all elements are commercial, the subpart goes on to list provisions and rights that the Government has in reviewing, verifying, challenging, and validating restrictive markings on technical data. Subpart 227.7103-1 “states that DoD is to obtain only the technical data, and the rights in that data, necessary to satisfy the agencies’ needs.” The same subpart, paragraph (d), goes on to explain that “Offerors and contractors shall not be prohibited or discouraged from furnishing or offering to furnish items, components, or processes developed at private expense solely because the Government’s rights to use, modify, release, reproduce, perform, display, or disclose technical data pertaining to those items may be restricted.” Some of the other guidance that

applies to the subject from the subpart are license rights (227.7103-4) and Government rights (227.7103-5).

GAO Reports

Weapons Acquisition: DoD Should Strengthen Policies for Accessing Technical Data Needs to Support Weapon Systems (GAO, 2006). This reported that critical elements of life-cycle support are unavailable to support, maintain, and operate critical weapon systems. It provided data showing that weapon systems will be in service longer than initially intended. One of the concerns with extending the life of a system is that PMs may have to retain sole source contracts because the technical data is unavailable to repair or upgrade the systems.

The report evaluated sustainment plans of several programs to see how those programs have been affected by the lack of technical data. The GAO team examined DoD policies to determine whether there are barriers that are preventing PMs from obtaining the required technical data.

Intellectual Property: Industry and Agency Concern Over Intellectual Property Rights (General Accounting Office, 2002). This report is the testimony of Mr. Jack L. Brock Jr., Managing Director, Acquisition and Sourcing Management, to the Technology and Procurement Policy Subcommittee on Government Acquisition Reform. Mr. Brock's statement gave a detailed view of how the Government obtains technical data and what concerns exist in the Government's ability to contract for the required TDR. Also, the report offered an industry and Government perspective on the challenges both have with managing technical data. The report further recommended and explained actions for both industry and government agencies to address their issues and concerns.

DoD Guidebook

Intellectual Property: Navigating Through Commercial Waters (USD(AT&L), 2001). Though dated October 2001, this guidebook is still the standard DoD-level document available to help PMs address issues and develop good results when contracting and negotiating for IP with commercial organizations. This guide is the product of a USD(AT&L) memorandum signed in January 2001, which stressed the importance of engaging in practices that will emphasize the use of negotiated license rights; add more flexibility when acquiring patent rights; consider performance-based acquisition strategies; and acquire only data rights that are truly required (USD(AT&L), 2001).

The guidebook goes on to document that very little technology is developed organically within the Government, making it critical that PMs know three things: who paid for what effort, what the deliverable requirements are under the contract, and how to negotiate for data rights before the contract award.

Memorandums

Implementation Directive for Better Buying Power 3.0: Achieving Dominant Capabilities Through Technical Excellence and Innovation (Kendall, 2015). This memorandum was the third in a series of three initiatives articulated by USD(AT&L) to address cost control associated with a weapon system's life cycle. In the latest memo, dated April 9, 2015, Mr. Kendall reinforced his guidance to use modular open system architectures (MOSA). To meet the USD(AT&L)'s expectations, PMs will need to buy the required TDR to enable development of open system architectures. By following the MOSA approach, the Government removes barriers to competition while increasing the return on investment and reducing life-cycle cost.

Air Force Handbook

Acquiring and Enforcing the Government's Rights in Technical Data and Computer Software under Department of Defense Contracts (Department of the Air Force, 2015). This manual is the seventh edition of the handbook, which is intended as a reference to help PMs on what, when, and how they should acquire technical data for Government weapon systems. The book provides guidance on intellectual property (IP) integrated product teams (IPTs). It recommends that stakeholders who best understand the product operational requirements and best know the maintenance and sustainment strategies should serve on the IP IPT.

The Air Force guide provides four good reasons why every PM should consider IP strategies in their acquisition planning: (1) the law requires that PMs be concerned, and agency policies backs up that guidance; (2) not procuring the correct level of TDR has a long-term impact on the PM's ability to sustain the weapons systems; (3) the unauthorized release of IP could lead to disclosure of patents or trade secrets, which is prosecutable under the law; and (4) disclosing the information could subject DoD to paying fines, which can degrade the reputation of the acquisition community (Department of the Air Force, 2015). Lastly, the guide gives direction on how to formulate the acquisition strategy to support the acquisition of technical data.

Journal and Magazine Articles

Less Is More: Encouraging Greater Competition in Computer Software Procurement by Simplifying the DFARS Licensing Scheme (Dungan, 2010). In the research, the author offered some innovative thinking about software that could apply to how PMs acquire hardware products. The author called for the Government to disallow any contracts that bear a resemblance to an unlimited rights license. Dungan went on to explain that he did not see any

case where the Government should be contracting for unlimited rights since technology moves so fast. The author also provided some views from the user and Government perspective.

Dungan's research included detailed definitions of standard license rights, the history of IP, some examples of how IP strategies have worked well, and where the Government can improve (starting with reform to the DFARS). On page 25 the author advised PMs to negotiate for the correct level of rights rather than purchasing unlimited rights.

The War Over Intellectual Property: Who Owns U.S. Defense Technology?

(Erwin, 2012). This article gathered some useful perspectives from industry on the Government directives regarding delivery of IP in contracting. The article gave an example of an aircraft engine maker who had spent more than 20 years trying to develop engines that would require 17 percent less fuel than traditional engines. In this example, the author explained that the company had concerns that the Government wanted the TDRs to support a full and open competition for spares.

Though this concern is not new to the acquisition community, the article confirmed that IP and TDR are issues that continue to fester within the Government. The industry continues to express concerns that the Government wants full and open competition for all contracts; however, original equipment manufacturers are hesitant to use their development dollars for new technology innovation when contractors know that the Government will take the data and share it with the competition.

Leveraging Better Buying Power to Deliver Product Support Outcomes (Medlin and Frankston, 2012). This piece gathered some insight from USD(AT&L) employees on how to provide better product support for weapon systems using the elements from the series of Better Buying Power initiatives. As more systems transition from the acquisition phase to the

sustainment phase, leaders in the C4ISR community have concerns that PMs are not properly transitioning products to sustainment because they have not acquired the proper TDR. The authors summarized a little background on the current condition, focusing more on the linkages that should exist from the development phase all the way through to sustainment. The authors also discussed Business Case Analysis (BCA) efforts that should be conducted to help influence decision makers on what level of technical data is required to support the products in sustainment. The authors provide feedback that these considerations are not new to the acquisition community; however, Medlin and Frankton's opinion is that not many procurement professionals completely understand technical data requirements.

United States Army War College Research Paper

Intellectual Property and Technical Data Rights: It's About the Money (Murray, 2012). An Army War College Senior Service College Fellow, Lieutenant Colonel Randy Murray offered a good overview of the growing pressure from the President, Capitol Hill and of Defense Department to increase competition for acquisition programs. He also provided a perspective of the Government direction for competition by industry. Also in his research, he presented examples of how the services are extending the life of programs for decades longer than originally intended, and technical data is key to ensuring that the Government can maintain these critical weapon systems. Murray's research explained that PMs were directed in the early 2000s to procure products using performance-based acquisition, which drove PMs away from obtaining technical data rights for COTS and NDI products.

He highlighted data from the National Defense Authorization Acts (NDAAs), starting with the 2007 NDAA, that "directed the Secretary of Defense to require program managers for major weapons systems and subsystems to access the long-term technical data needs" (p. 6). His

research also made six recommendations that, if implemented, could help to reduce some of the complexity associated with IP and TDR in procurement.

Summary

Sufficient information exists in the laws, regulations, and guidebooks to guide acquisition professionals on the procurement of TDR. Based on the GAO reports and articles, there still seems to be a gap in how PMs are to procure TDR for major weapons systems. The policies are clear and concise, but few appear to follow their direction. As total life-cycle system managers, it is critical that PMs address technical data rights management in the acquisition strategy as required in DoDI 5000.02. Since the time in service of some key weapon systems has increased, PMs need to understand the value that BCAs have in determining what risk the Government will accept when lacking the TDR for legacy programs.

Chapter 3 – Research Methodology

The purpose of this section is to highlight the research approach and procedures used in developing this study. This chapter describes the research methodology, including the hypothesis, research design, bias and errors, and any limitations in this study.

Research Hypothesis

For this research project, the null hypothesis (H_0) is that defense acquisition leaders help to sustain weapon systems when PMs procure TDR. The alternative hypothesis (H_1) is that the direction from the DoD not to purchase TDRs for COTS and NDI products has reduced the capabilities of the organic industrial base in sustaining critical technology.

Objectives and Outcomes

The findings of this research will provide PMs with guidance on the acquisition of technical data and best practices for managing IP to ensure there are no leaks of contractor's proprietary data. It will also make available information that PMs can use to build the capabilities of the Army organic industrial base.

Research Design

The author analyzed how acquisition professionals determine which TDRs to procure when planning acquisition logistics. The goal of this study is to add to the body of knowledge that currently exists in the area of TDR management and sustainment planning. This exploration of the subject is qualitative-based research that systematically evaluates the available IP and TDR evidence to determine best practices for acquisition professionals' future procurement efforts. Data was collected from existing DoD instructions and directives, case studies, interviews, and personal experience to determine patterns and best practices.

The key research variables in this study are the perspective views from PMs, AMC, HQ G-4 and G-8, ASA(ALT), Communications-Electronics Command (CECOM) Life Cycle Management Command (LCMC), Tobyhanna Army Depot, and the user. The unit of analysis is the assessment of the evidence to determine the relevance to the COTS and NDI hardware TDR.

To determine what scholarly data is available in the area of TDR, the author reviewed online databases and scrutinized DoD policies. A set of recommendations is presented based on a review of the available evidence, including congressional hearings and audits conducted by GAO.

Bias and Error

Using the qualitative-based research approach, the validity and reliability of the study are founded on the research gathered, the author's experience as a product support manager, and the perspectives of the subject matter experts cited in the study.

The evidence used in this evaluation is believed to be reliable based on the current policies and procedures published in DoD instructions, policies, regulations, and guidebooks. The evidence is also congruent with the training offered by the Defense Acquisition University (DAU) in the Logistics 215 course.

Chapter 4 – Findings

This study uses evidence-based research and secondary sources of information included in DoD directives, GAO reports, DoD and AMC memorandums. The secondary sources were used to explain any information not covered in the primary sources. The secondary sources are also the basis for the comparison of perspective organizational views on technical data management. The research also covers available commercial industry articles addressing the industry's concerns of how the Government acquires, maintains, and protects technical data. The focus of this chapter is to determine whether Army PMs should procure TDR for COTS and NDI hardware and to understand the impact of not buying TDP on the organic industrial base.

Analysis

The research found sufficient accessible TDR guidance published in statutes, DoD directives and other directives at the department and Service level. In addition, several GAO audits provide recommendations on what PMs should do when determining the correct level of procurement for TDR. There are also several high-level papers and articles that look into the subject of technical data and IP rights. These sources, and other published information on the subject, are accessible on internal Government Web sites and other open source Web sites. This information is available to help acquisition professionals develop technical data procurements in the future. The research also exposed perspective organizational viewpoints on what technical data rights are needed and what analysis is available to assist PMs in determining the best IP strategy.

Suitable Direction and Guidance Available to PMs

This review seeks to determine whether there is adequate information available to assist acquisition professionals in deciding what rights best support their weapon system sustainment

requirements, whether the information provided applies to all programs, and whether the industry has the same impression of the guidance.

Section 2320 of Title 10 of the U.S. Code sets a statutory requirement for major programs to have an IP strategy throughout the life of the program. An IP strategy is the PM's methodology for buying technical data rights and managing the associated program risk. The strategy is to be included in the acquisition strategy and later carried in the Life Cycle Sustainment Plan (LCSP) as the program transitions from the production phase to the operations and sustainment phases. The statute mandates PMs to update the strategy as significant fact-of-life changes occur and at each milestone. The statute is clear and adequate to aid PMs in developing technical data requirements.

DoDI 5000.2 endorses the foregoing statute by providing guidance on IP planning for all systems through the life cycle. The instructions direct PMs to document how the PM will acquire technical data rights and how the PM will support competition in all follow-on contract efforts in the IP strategy. Surprisingly, the latest published DoD instructions say that PMs may request a waiver from the MDA for any statutory or regulatory requirements documents. The instructions also specify that the MDA will be the determining authority for any waiver at the milestone decision. The updated DoD instructions also note that the Secretary of Defense has been granted the power to waive acquisition laws in procurement, but must notify the Congress of the action. The last two changes to the instructions provide PMs with more flexibility in managing their assigned programs. However, this flexibility may hinder PMs from considering the best TDR strategies.

Section 806 of the 2016 NDAA (2015-2016), codifies the authority of the Secretary of Defense to waive any law or regulatory requirements in the evaluation, production, fielding, and

solicitations of future contract actions in support of acquiring necessary national defense capabilities. The DoD must notify Congress no later than 30 days before approving the waiver. Section 813 of the same NDAA provides guidance and direction on the technical data rights for commercial items for major components and subsystem components.

More guidance on acquisition for COTS and NDI products appears in 10 U.S.C (Armed Forces, 2012). The direction from the statute is for agency heads to consider the use of commercial and NDI solutions to the maximum extent possible. The statute also directs that the PM will receive the same rights offered to the commercial market for the item.

Although direction exists to assist acquisition professionals on developing suitable strategies for acquisition of the correct TDRs, there is a gap. The guidance on how acquisition professionals should address TDRs for COTS/NDI products is insufficient. DoD (2007) directs PMs to use COTS products to the maximum extent possible; however, no data could be found on procuring technical data for COTS/NDI products. Since the commercial marketplace is constantly increasing the capability of the available COTS/NDI products, PM should consider buying TDRs to make certain that products are sustainable in case the life of the program is extended longer than initially estimated.

Organizational Viewpoints on Technical Data Procurement

There are several different approaches for procuring TDRs, with variables for the levels of access and language for their inclusion in the larger contract. The acquisition workforce view is that we should obtain only the data rights necessary to assist in sustaining weapon systems. The DFARS directs that the materiel developer should specifically negotiate license rights as opposed to purchasing unlimited or general purpose rights. The DFAR also provides guidance that the PM should forecast program technical data requirements early in the program's life cycle

and forecast for any downstream changes in TDR requirements. The PM must understand that access and possession of rights are only a license to the information and that the company retains ownership of the rights.

Contracting professionals and the sustainment community hold a different view on TDR procurement. Government contracting professionals are assigned to ensure that data rights clauses and provisions are included in the contract language. Contracting professionals are taught in formal acquisition training programs to reduce cost by minimizing data rights purchases and rejecting anything that resembles unlimited rights (GAO, 2006). The Army sustainment organizational views of TDRs are that the PM should acquire unlimited or general purpose rights to ensure the Government can perform organic depot-level maintenance and soldier field-level maintenance. Communication-Electronics Communications Command (CECOM) has issued a policy letter that directs the community to submit all contractual action for staffing to the IP legal representative. The policy goes on to state that CECOM will hold Intellectual Property Workgroups to facilitate the process of reviewing new contract requirements to ensure that the correct TDR clauses are included in the package. This policy provides a much-needed review of all future sustainment contracts; however, the PM contracts are not required to follow this policy.

With the move to procure COTS and NDI products, the market has seen a decrease in Government-funded research and development (R&D) projects. This decrease in Government-funded R&D has led to companies funding innovative projects with their internal, independent R&D budget. This move is ideal for the Government when it wants to execute new procurements, but can be very expensive when it comes to re-competing efforts for similar products. Jack L. Brock, Jr. (GAO, 2006) testified that companies have stopped working with the Government because they perceive the Government as having weak IP requirements definitions

and that leaders in the industry have concerns about the Government's capacity to protect technical data. The GAO (2006) also presented a case study where the Government procured a weapons system in 1993 with limited data rights only to find out they didn't have enough technical data to compete for a secondary production line to meet war time needs and they didn't have enough data to execute depot-level maintenance.

Up-armored High-Mobility Multipurpose Wheeled Vehicles: "When the Army first developed the up-armored HMMWV in 1993, it did not purchase the technical data necessary to develop new sources of supply to increase production. Army officials anticipated fielding these vehicles to a limited number of Army units for reconnaissance and peacekeeping purposes. At that time, the Army did not obtain technical data required for the manufacture of up-armor HMMWVs. With the increasing threat of improvised explosive devices during operations in Iraq, demand for up-armored HMMWVs increased substantially, from 1,407 vehicles in August 2003 to 8,105 vehicles by September 2004. According to Army officials, the manufacturer declined to sell the rights to the technical data package. Because of the lack of technical data rights to produce up-armored HMMWVs, program officials explained they were "unable to rapidly contract with alternate suppliers to meet the wartime surge requirement. (GAO, 2006, p. 8)

The last perspective on TDR is the view of the Army's organic industrial base Center for Industrial Technical Excellence. Title 10 U.S.C. § 2464 directs that the Government must stand up and maintain an organic Government repair capability for mission-essential materiel within four years after a program has reached Initial Operational Capability. According to 10 (U.S.C.,

2464), “The PM is responsible for including all depot activation costs in the program life cycle cost estimate before [Milestone] C.” All new core capabilities fall under this requirement unless the depot already has an existing repair capability on hand. The PM is also responsible for ensuring that depot employees are trained and certified to perform depot-level maintenance.

DoDD 5000.1 contains an essential thread that “the PM shall be the single point of accountability for accomplishing program objectives for total life-cycle system management, including sustainment” (p. 10). However, each stakeholder has competing views on TDR, and the Army sustainment funding flows directly to the sustainment community, not to the PM.

Summary

The evidence reflects increased DoD commitment to align TDR policies to ensure that acquisition professionals will consider best practices when planning and executing procurement approaches. Since the GAO (2006) reported that DoD policies were not congruent with the practices from industry, DoD has revised and issued a policy that directs PMs to consider IP and TDR early in the life of the program. Guidance requiring an IP strategy is a major step in making sure rights are well thought out in every phase of the life cycle. The organizational perspectives of TDR are important to know, and the relationship between the key stakeholders is critical to making sure we procure the correct data rights to sustain the products throughout their intended life.

Hindrances to the success of PMs in TDR procurements are (1) acquiring unlimited rights for everything, which leads to making programs unaffordable, and (2) not knowing what rights are required for re-procurements, sustainment, and modification, which affect the sustainment community’s ability to sustain mission-essential products or to compete for future buys of similar items.

Chapter 5 – Interpretation

As technology becomes increasingly complex, it is important that the acquisition workforce understands the impact of TDR or the lack of technical data on program operations and sustainment. Acquiring the TDP can be expensive; however, the cost increases if data rights are not considered early in the life of the program. The H_0 —that acquisition leaders help to sustain weapon systems when they procure the correct level of TDRs—was founded. However, no data could be found to support H_1 —that COTS and NDI product procurements have reduced the repair capabilities of our organic industrial base.

Conclusion

The author draws three conclusions from the research: (1) there is sufficient TDR management guidance available for acquisition professionals; (2) it is imperative that PMs consider procuring TDRs for COTS and NDI items if products are to be in the Army's formation long after the procurement contract has ended; and (3) acquisition professionals need to understand which early life-cycle TDR management decisions help to increase the PM's ability to deliver supportable systems to the user.

Recommendations

The research shows that programs are more supportable, competition is increased, and total ownership cost is lowered when acquisition professionals execute a good IP strategy. To make better use of this data, four recommendations are offered to acquisition leaders for consideration when procuring and managing acquisition programs:

1. Consider TDRs early in the life-cycle of the program and understand what decisions need to be made to help increase competition in follow-on procurement actions to acquire additional systems, spares, and repair parts. The forum available to guide acquisition workforce

members in managing data rights is through the use of the PM's IP IPT. This strategy will help PMs articulate their approach to managing cost, schedule, performance, and risk associated with IP. It is important for this information to be included in the acquisition strategy and transitioned to the LCSP as the program matures in the product evolution from development, to production, and finally to sustainment.

2. Weigh the pros and cons of assigning a dedicated career field to manage IP and TDRs. The legal office has IP lawyers reviewing acquisition packages to ensure that we are contracting for the right level of TDRs; however, it is not efficient to wait until the contract package is prepared to determine whether the contract includes all IP and TDR requirements. IP strategy is continuously changing, which will require active participation from IP subject matter experts who understand the many diverse disciplines associated with Government acquisition.

3. Increase training of acquisition professionals. Several courses are available for all members of the acquisition community through DAU. The author recommends that the Logistics 215, Technical Data Management, course be added as a Functional Training requirement for Level II certification in Life Cycle Logistics, Contracting, and Program Management. Also recommended is the addition of DAU's continuous learning module CLE 068, Intellectual Property and Data Rights, to the Core Plus requirements for Level I certification for all career fields.

4. Increase the collaboration between the Program Executive Office and Life Cycle Management Command. It is important that the two organizations share information early in the life of the program since sustainment funding may affect the strategies and decisions made by the Program Executive Office and PMs. Increasing the relationships between the organizations

will better position the program to achieve the intended cost, schedule, performance, and reliability goals.

Limitation of the Study

The limitation to this research, which restricted the findings, is the availability of primary data. Due to DoD limitations on conducting surveys, I could not validate the viewpoints and understanding from other professionals currently working TDR issues. To offset this limitation, the author reviewed papers, guidebooks, and policies published on the subject. Several articles validated the concerns that were initially assumed to exist. Ideally, having a good sample of individuals to interview or survey could contribute more to the findings.

Areas for Future Research

There are two recommendations for further study on this topic. The first recommendation is to conduct a survey of acquisition professionals to determine what processes are currently working for COTS and NDI products. This will provide a better perspective on the challenges and successes from acquisition professionals. The second recommendation is to conduct a personnel laydown study analysis with one of the Army depots to assess the impacts of not having technical data. This will offer more insight into the importance of TDR management and a better understanding of the impacts on the industrial base.

Summary

Access to the correct level of data rights helps the Government mitigate risk associated with the re-procurements of additional systems, spares, and service. Acquisition leaders should conduct a cost-benefits analysis to weigh the cost of data rights procurement against the program's sustainment requirements. It is important that acquisition professionals consider the following questions as they develop IP strategies: (1) Will there be a modification, upgrade,

or repair requirement after the contract has expired? (2) What is the likelihood that the contractor will be in business when the time comes to re-compete the COTS/NDI effort? (3) Is the commercial product compliant with open standards architecture? The answers to these questions will help guide stakeholders to make good TDR procurement decisions early in the life of the program, ensuring a capability to support commercial products in the field.

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Glossary of Acronyms and Terms

AMC	Army Materiel Command
ASA(ALT)	Assistant Secretary of the Army for Acquisition, Logistics, and Technology
AT&L.....	Acquisition, Technology, and Logistics
BCA	Business Case Analysis
C4ISR.....	Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance
CECOM	Communication-Electronics Command
DAU	Defense Acquisition University
DFARS	Defense Federal Acquisition Regulation Supplement
DoD.....	Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instructions
GAO	Government Accountability Office
H_0	null hypothesis
H_1	alternate hypothesis
HQ.....	Headquarters
IP	intellectual property
IPT	integrated product team
LCMC	Life Cycle Management Command
LCSP	Life Cycle Sustainment Plan
MDA	Milestone Decision Authority
MOSA.....	modular open system architecture

NDAANational Defense Authorization Act

NDInondevelopmental item

PMproject manager

R&D.....research and development

TDPtechnical data packages

TDR.....technical data rights

U.S.C.United States Code

USD.....Under Secretary of Defense

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